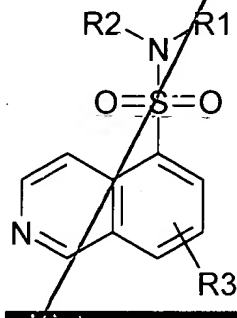


We claim:

1. A method for limiting damage to neuronal cells by ischemic or epoxic conditions, comprising administering to an individual a *ptc* therapeutic in an amount effective for reducing cerebral infarct volume relative to the absence of administration of the *ptc* therapeutic, wherein the *ptc* therapeutic inhibits PKC with a  $K_i$  greater than 1  $\mu$ M.
2. A method for protecting cerebral tissue of a mammal against the repercussions of ischemia which comprises administering to the mammal in need thereof a therapeutically effective amount of a *ptc* therapeutic, wherein the *ptc* therapeutic inhibits PKC with a  $K_i$  greater than 1  $\mu$ M.
3. A method for the treatment of cerebral infarctions which comprises administering to a patient in need thereof a therapeutically effective amount of a *ptc* therapeutic, wherein the *ptc* therapeutic inhibits PKC with a  $K_i$  greater than 1  $\mu$ M.
4. A method for the treatment of cerebral ischemia which comprises administering to a patient in need thereof a therapeutically effective amount of a *ptc* therapeutic, wherein the *ptc* therapeutic inhibits PKC with a  $K_i$  greater than 1  $\mu$ M.
5. A method for the treatment of stroke which comprises administering to a patient in need thereof a therapeutically effective amount of a *ptc* therapeutic, wherein the *ptc* therapeutic inhibits PKC with a  $K_i$  greater than 1  $\mu$ M.
6. A method for the treatment of transient ischemia attack which comprises administering to a patient in need thereof a therapeutically effective amount of a *ptc* therapeutic, wherein the *ptc* therapeutic inhibits PKC with a  $K_i$  greater than 1  $\mu$ M.
7. The method of any of claims 1-6, wherein the *ptc* therapeutic binds to *patched* and mimics *hedgehog*-mediated *patched* signal transduction.
8. The method of claim 7, wherein the *ptc* therapeutic is a small organic molecule.
9. The method of claim 7, wherein the binding of the *ptc* therapeutic to *patched* results in upregulation of *patched* and/or *gli* expression.
10. The method of claim 8, wherein the *ptc* therapeutic is a small organic molecule which interacts with neuronal cells to mimic *hedgehog*-mediated *patched* signal transduction.
11. The method of any of claims 1-6, wherein the *ptc* therapeutic mimics *hedgehog*-mediated *patched* signal transduction by altering the localization, protein-protein binding and/or enzymatic activity of an intracellular protein involved in a *patched* signal pathway.

12. The method of any of claims 1-6, wherein the *ptc* therapeutic alters the level of expression of a *hedgehog* protein, a *patched* protein or a protein involved in the intracellular signal transduction pathway of *patched*.
13. The method of claim 11, wherein the *ptc* therapeutic is a small organic molecule which binds to *patched* and regulates *patched*-dependent gene expression.
14. The method of claim 11, wherein the *ptc* therapeutic is an inhibitor of protein kinase A (PKA).
15. The method of claim 14, wherein the PKA inhibitor is a 5-isoquinolinesulfonamide.
16. The method of claim 15, wherein the PKA inhibitor is represented in the general formula:




wherein,

$R_1$  and  $R_2$  each can independently represent hydrogen, and as valence and stability permit a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl, a thiocarbonyl, an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido,  $-(CH_2)_m-R_8$ ,  $-(CH_2)_m-OH$ ,  $-(CH_2)_m-O$ -lower alkyl,  $-(CH_2)_m-O$ -lower alkenyl,  $-(CH_2)_n-O-(CH_2)_m-R_8$ ,  $-(CH_2)_m-SH$ ,  $-(CH_2)_m-S$ -lower alkyl,  $-(CH_2)_m-S$ -lower alkenyl,  $-(CH_2)_n-S-(CH_2)_m-R_8$ , or

$R_1$  and  $R_2$  taken together with N form a substituted or unsubstituted heterocycle;

$R_3$  is absent or represents one or more substitutions to the isoquinoline ring such as a lower alkyl, a lower alkenyl, a lower alkynyl, a carbonyl (such as a carboxyl, an ester, a formate, or a ketone), a thiocarbonyl (such as a thioester, a thioacetate, or a thioformate), an amino, an acylamino, an amido, a cyano, a nitro, an azido, a sulfate, a sulfonate, a sulfonamido,  $-(CH_2)_m-R_8$ ,  $-(CH_2)_m-OH$ ,  $-(CH_2)_m-O$ -lower alkyl,  $-(CH_2)_m-O$ -lower alkenyl,  $-(CH_2)_n-O-(CH_2)_m-R_8$ ,  $-(CH_2)_m-SH$ ,  $-(CH_2)_m-S$ -lower alkyl,  $-(CH_2)_m-S$ -lower alkenyl,  $-(CH_2)_n-S-(CH_2)_m-R_8$ ;

 R<sub>8</sub> represents a substituted or unsubstituted aryl, aralkyl, cycloalkyl, cycloalkenyl, or heterocycle; and

n and m are independently for each occurrence zero or an integer in the range of 1 to 6.

- 5 17. The method of claim 14, wherein the PKA inhibitor is selected from the group consisting of N-[2-((p-bromocinnamyl)amino)ethyl]-5-isoquinolinesulfonamide, KT5720, and PKA Heat Stable Inhibitor isoform  $\alpha$ .
18. The method of claim 5, wherein the stroke is a thrombotic stroke.
19. The method of claim 5, wherein the stroke is an embolic stroke.
20. The method of claim 1, wherein the conditions result in cerebral hypoxia.
- 10 21. The method of claim 1, wherein the conditions result in progressive loss of neurons due to oxygen deprivation.
22. The method of any of claims 3-6, wherein the patient is treated prophylactically.
23. The method of claim 1, wherein the individual is treated prophylactically.
24. The method of claim 2, wherein the mammal is treated prophylactically.
- 15 25. The method of claim 1, wherein the patient is hypotensive.
26. The method of any of claims 1-6, further comprising administering one or more of an anticoagulant, an antiplatelet agent, a thrombin inhibitor, and/or a thrombolytic agent.
- 20 27. The method of any of claims 1-6, further comprising performing vascular surgery.
28. The method of claim 27, wherein the vascular surgery comprises carotid endarterectomy.
29. The method of any of claims 1-6, wherein treatment of the patient with the *ptc* therapeutic results in at least a 25% reduction in cerebral infarct volumes relative to absence of treatment with the *ptc* therapeutic.
- 25 30. The method of claim 29, wherein treatment of the patient with the *ptc* therapeutic results in at least a 50% reduction in cerebral infarct volumes relative to absence of treatment with the *ptc* therapeutic.

31. The method of claim 29, wherein treatment of the patient with the *ptc* therapeutic results in at least a 70% reduction in cerebral infarct volumes relative to absence of treatment with the *ptc* therapeutic.
32. The method of any of claims 1-6, wherein the *ptc* therapeutic inhibits the activity of PKA, cAMP, or adenylate cyclase.
33. The method of any of claims 1-6, wherein the *ptc* therapeutic agonizes the activity of cAMP phosphodiesterase.
34. A therapeutic preparation of a small molecule antagonist of *patched*, which *patched* antagonist inhibits PKC with a  $K_i$  greater than 100 nM and is provided in a pharmaceutically acceptable carrier and in an amount sufficient to provide protection against neuronal cell death under ischemic and/or hypoxic conditions.
35. The preparation of claim 34, which *patched* antagonist binds to *patched*.
36. The preparation of claim 34, wherein the *patched* antagonist is provided in an amount sufficient to produce, upon a dosage regimen of 7 days, at least a 70% decrease in infarct volume in an MCAO model relative to the absence of the *patched* antagonist.
37. The preparation of claim 34, wherein the *patched* antagonist is provided in an amount sufficient to produce, upon a dosage regimen of 3 days, at least a 70% decrease in infarct volume in an MCAO model relative to the absence of the *patched* antagonist.